DOCUMENT RESUME

ED 306 751 EC 212 815

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TITLE Managing Premature Infant Stress: Training Does Make a Difference?
SPONS AGENCY Department of Education, Washington, DC.
PUB DATE Aug 88
GRANT 121-0400
NOTE 9p.; Paper presented at the Annual Convention of the American Psychological Association (96th, Atlanta, GA, August 12-16, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Change; Behavior Development; Child Development; *Hospitalized Children; Infant Behavior; Intervention; Medical Services; Neonates; *Nurses; Nursing; *Premature Infants; *Stress Management; Training
IDENTIFIERS *Intensive Care Nursing

ABSTRACT

The Nurse-Parent Training Project, developed in cooperation with Children's Hospital of Buffalo (New York), was designed to provide developmental supportive care for premature infants, and to reduce stress while optimizing neurobehavioral development. A program was conducted to train nurses working in neonatal intensive care nurseries, to enable them to recognize infant signs of stress and use appropriate interventions to promote infant stability. The training employed a stress and coping model to address infant, family, and staff stress. Sixteen nurses were trained, and observation of their subsequent clinical behaviors supported the efficacy of the training. Compared to 10 nurses on a training wait list and 10 nurses who did not wish to undergo training, trained nurses showed more caring behaviors during medical interventions and showed more effective supportive behaviors following medical interventions. (JDD)

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ED306751

Managing Premature Infant Stress: Training Does Make a Difference?[1]

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Paper presented at 1988 American Psychological Association, Atlanta

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[1]This paper was supported in part by funding by U.S. Department of Education Grant 121-0400.

The authors wish to thank: M. Adams, S. Agatstein, M. Clerey, R. Hehr, R. Leone, D. Monks, R. Palmer, L. Phillips, J. Ray, and C. Wood.

EC213815

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ABSTRACT

The efficacy of the Nurse-Parent Training project was evaluated in a comparison of use of appropriate developmental interventions with preterm infants in the intensive care nursery by trained nurses to an untrained nurse control group. Nurse behaviors with high-risk infants was observed during and post medical interventions. Effective care interventions that promoted infants' self-regulation and stability were recorded. Trained nurses demonstrated significantly more supportive interventions. The pattern of results supports the efficacy of specialized NICU nurse training in changing the clinical behavior of nurses in practice.

Although medical advances in the neonatal intensive care nursery (NICU) have increased the life chances of high-risk neonates, there is increased concern for their developmental outcomes (Ensher & Clark, 1986). Statistics place these vulnerable newborns at risk for developmental deficiencies, learning disabilites, motor handicaps and visual - perceptual difficulties (Meisels, Plunkett, Roloff, Pasick & Stiefel, 1986). The fragile, high-risk preterm infant is easily taxed by the overwhelming NICU environmental demands and the frequent, often intrusive, medical procedures. As a result these infants may become physiologically stressed, behaviorally disorganized and unable to regulate autonomic or motor responses. Clinicians now recognize the need for effective care interventions that enhance infants' capacities for self-regulation and stability (High & Gorski, 1985).

The challenge to NICU medical care providers is to provide developmental supportive care for the premature infant that reduces stress while optimizing neurobehavioral development. Neonatal nurses are the infants' primary care providers during their hospital stay and thus are a professional group in a key position to provide such interventions. While NICU nurses have become highly skilled in specialized medical care, they receive little or no formal training about psychosocial developmental interventions that facilitate optimal developmental outcomes in the sick neonate.

The Nurse-Parent Training Project, in cooperation of Children's Hospital of Buffalo, was designed to address this need

(Wyly, 1986). The training employed a stress and coping model to address infant, family and staff stress in the NICU and was conducted by interdisciplinary teams which included nurses, physicians and psychologists. NICU nurses were trained to recognize infant signs of stress and use appropriate interventions during and after medical interventions to promote infant stability. The training program consisted of 20 hours of lecture, small-group designs, and case studies and emphasized a supervised in situ practicum in the NICU (training manual available from authors).

The present study evaluates the efficacy of the innovate Nurse-Parent Training Project by comparing the actual use of appropriate developmental interventions with infants in the NICU by trained nurses to a control group of untrained nurses.

Method

Subjects

A total of 36 Neonatal Intensive Care Nurses from a hospital's intensive and intermediate level care nursery participated in the study. Of the total, 16 nurses were randomly selected from the 60 graduates of the nurse training program. Ten nurses who were on the training wait list and ten nurses who did not wish training served as controls. Nurses observed were selected from the day and evening shifts.

Procedure

Data was collected by five trained two-person teams. Teams observed four to eight different nurses and were blind to their training status. Teams were introduced to nurses as students who

were interested finding out about the NICU. The NICU has a steady flow of traffic which includes, staff, parents, student nurses and residents which faciliated unobtrusive observation. After being randomly assigned to observe a nurse, teams stood in the NICU and waited until a medical intervention took place. Observers then recorded the nurse's behavior during and post the medical intervention. Medical interventions were defined as: tube feeding, drawing blood, adjusting or inserting IVs, placing or adjusting sensors on infant's body. Teams recorded each nurse's behavior after two different medical interventions.

Measures

Observers collected three measures using checklists based on the training material. First, nurse behavior during the medical intervention was recorded. The behaviors were defined as presence of: stroking baby's body, talking to baby, and positioning baby for security. Second, after the medical intervention was completed, the nurse's post intervention behavior was recorded for five minutes. The behaviors were defined as presence of: stroking baby's body, talking to baby, positioning baby for security, shielding baby's eyes, tucking in baby, and placing pacifier in baby's mouth. Third, the amount of time the nurse spend in close physical proximity (one meter or less with 70 degree or less orientation) to the infant during the five-minute period was recorded by stopwatch.

Results

Interjudge reliabilities were calcuated for the teams and averaged to be 75% or better. After resolving discrepancies

among observers, the number of different behaviors observed during medical intervention were summed over the two observed medical interventions for each nurse to create a Behavior During Intervention Index. The number of different behaviors observed post medical intervention were summed over the two observations for each nurse to create a Behavior Post Intervention Index (Cronbach's alpha = .7). Finally the total amount of time spent with infants after each intervention was summed for each nurse to create a Total Time Index.

A MANOVA comparing the wait list and no training nurses was performed on the three indicies to determine whether the two groups were equivalent. No significant differences were found (Wilks F (3,16) = 1.44, $p < .27$) and so the two groups were collapsed into a single control group for the subsequent analyses.

To test the impact of the training a 2 (nursery) x 2 (training status) MANOVA was performed on the three indicies. A significant effect of training status was found (Wilks F (3,30) = 3.05, $p < .04$). Overall, trained nurses exhibited more effective behaviors. Follow up univariate analyses indicated that this was primarily due to trained nurses (X=3.76) demonstrating more effective supportive behaviors post-medical intervention than controls (X=1.65; F (1,32) = 9.08, $p < .01$). Trained nurses also demonstrated a marginally significant trend for more caring behaviors during medical interventions ($p < .08$). No differences in time spent with infants were found. No differences between nurseries were found.

Discussion

The pattern of results indicates support for the efficacy of NICU nurse training in changing the clinical behavior of nurses in practice. Although training addressed both attitudinal as well as behavioral changes by NICU nurses, the true measure of training effectiveness is implementation of new infant health care behaviors in the NICU. While the results are encouraging it should be noted that nurses self-selected into the training program, thus creating a possible selection bias. However, nurses on the wait list who would be assumed to be motivated to learn new care techniques did not differ significantly from the untrained nurse group. Future evaluation of training should examine other nurse behavioral changes such as assisting parents of high-risk infants to interact supportively with their infant and the cost/effectiveness of such treatment.

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